

Alley Farming Research and Development



**Proceedings of an International
Conference on Alley Farming**

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Proceedings of the International Conference on Alley Farming

14-18 September 1992
Ibadan, Nigeria

Edited by

B.T. Kang, A.O. Osiname and A. Larbi

Alley Farming Network for Tropical Africa

in collaboration with

**International Institute of Tropical Agriculture
International Centre for Research in Agroforestry
International Livestock Research Institute**

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FOREWORD

From the beginning of its mandate in Africa, the International Institute of Tropical Agriculture (IITA) realized the need for sustainable natural resource management to complement improved germplasm and related technology components if the goal of satisfying the food needs of tropical Africa was to be achieved. Rapidly growing populations and declines in per capita food production have put pressure on scientists to develop an alternative system to the traditional slash and burn agriculture which has caused large-scale deforestation and land degradation without a fairly long fallow period to restore soil fertility. Lack of adequate fertile land has caused large-scale deforestation and land degradation in many countries in the tropics, especially in subSaharan Africa.

Alley farming, a composite technology developed by IITA, offers an opportunity for increasing land-use intensity while maintaining the productivity of the natural resource base at a reasonable level. Since the formation of the Alley Farming Network for Tropical Africa (AFNETA) in 1989 by IITA, the International Livestock Centre for Africa (ILCA), the International Centre for Research in Agroforestry (ICRAF) and collaborating national agricultural research systems (NARS) in the region, research on alley farming has attracted growing worldwide interest.

This conference, therefore, has provided a good opportunity for scientists working on all aspects of alley farming worldwide to share experiences, prepare a comprehensive update on alley farming issues and jointly plan the next course of research and development activities. We were fortunate to have had our colleagues from other continents at the conference to share their experiences on developmental work in alley farming.

It is expected that the recommendations which have emerged from the conference will enhance the adaption and adoption of the technology by farmers in tropical Africa. It is also hoped that the adoption studies will attract as much enthusiasm from the scientists as the biophysical studies.

We thank the donor agencies — the Canadian International Development Agency (CIDA), the International Fund for Agricultural Development (IFAD), the International Development Research Centre (IDRC), Ottawa, Canada, the United States Agency for International Development (USAID) and the Danish International Development Agency (DANIDA) — for their financial support for research on alley farming. We are, in particular, most grateful to the IDRC, the sponsor of this conference.

LUKAS BRADER
DIRECTOR GENERAL

INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE

N.B. ILCA was merged with the International Laboratory for Research on Animal diseases (ILRAD) in January 1995, to form the new Center of International Livestock Research Institute (ILRI).

INTRODUCTION

Since the last alley farming conference in August 1986, a large amount of information has been gathered by researchers working on alley farming in different parts of the tropics. This conference has brought together researchers working on alley farming in national agricultural research systems (NARS), international agricultural research centers (IARCs) and other institutions, to discuss their research achievements, problems and future work orientation. Besides presentations on basic research achievements, emphasis is also given to various approaches used in developmental work and the results obtained in different parts of the African, Asian and Latin American continents.

The presentations have been organized into seven parts. Part I, *Official Addresses*, presents the speeches by representatives of IITA, the government of Nigeria and the International Fund for Agricultural Development (IFAD). Part II, *Synthesis of Alley Farming Research at International Agricultural Research Centers* presents an overview of results from IITA, ICRAF and ILCA and their future research orientation. Part III, *Processes and Management Studies in Alley Farming*, presents the results of various component studies on alley farming and on the development of a decision support package. Part IV, *Improving Ruminant Production with Multipurpose Trees and Shrubs*, deals with current research findings on the value of multipurpose trees and shrubs for fodder production. Part Va, *Experiences from the Humid and Subhumid Tropics of subSaharan Africa*, summarizes research findings conducted mainly in national agricultural research systems (NARS) in Africa south of the Sahara. Part Vb, *Experiences from the Humid and Subhumid Tropics of Southeast Asia, the South Pacific and South America*, reviews the experimental research work on acid soils in Latin America and Asia, investigations in the highland of Central America and research on the volcanic soils in Western Samoa. Part VI, *Methodologies for On-farm Research and the Economics of Alley Farming*, summarizes the results of on-farm research in Africa and the economics of alley farming in Central America. Part VII, *Development and Extension Experiences*, evaluates the results of various developmental and extension projects undertaken in Africa and in Southeast Asia. Appendix 1 is a summary of the recommendations agreed upon by the delegates for future research work on alley farming in the areas of: agronomic and process research, MPT selection and evaluation, extension and adoption; and network research orientation.

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ACRONYMS AND ABBREVIATIONS

AFNETA	Alley Farming Network for Tropical Africa
AFRENAS	African Regional Network for Alley farming Systems
CATIE	Centro Agronomico Tropical de Investigación y Enseñanza
CGIAR	Consultative Group on International Agricultural Research
CRIDA	Central Research Institute for Dryland Agriculture
CUSO	Canadian Universities Services Overseas
DANIDA	Danish-International Development Agency
DARP	dryland agriculture research project
ES	expert systems
FYI	field yield index
FYM	farm yard manure
GIS	geographic information systems
GTZ	Gesellschaft für Technische Zusammenarbeit
IARC	international agricultural research centers
ICRAF	International Centre for Research in Agroforestry
IFAD	International Fund for Agricultural Development
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
ILRI	International Livestock Research Institute
KARI	Kenya Agriculture Research Institute
KEFRI	Kenya Forestry Research Institute
MAP	months after planting
NARS	national agricultural reseach systems
NGO	non government organization
OFCOR	on-farm client-oriented research
OSADEP	Oyo State Agricultural Development Project
SARD	sustainable agriculture and rural development
SMSS	soil management support service
UNCED	UN Conference on Environment and Development
USAID	United States Agency for International Development
WCARRD	World Conference on Agrarian Reform and Rural Development
WCED	World Commission of Environment and Development